SAF-RC-032 100-F Remaining Sites Burial Grounds Soil Full Protocol FINAL VALIDATION PACKAGE

COMPLETE COPY OF VALIDATION PACKAGE TO:

Jeanette Duncan (2) H4-21

INITIAL/DATE

COMMENTS:

SDG K0501

SAF-RC-032

Waste Site: 118-F-3



Date:

2 October 2006

To:

Washington Closure Hanford Inc. (technical representative)

From:

TechLaw, Inc.

Project:

100-F Remaining Sites Burial Grounds - Soil Full Protocol - Waste Site

118-F-3

Subject: Inorganic - Data Package No. K0501-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0501 prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	DITC
J134V0	8/2/06	Soil	C	See note 1
J134T9	8/2/06	Soil	С	See note 1

^{1 -} ICP metals (6010B) and mercury (7471A).

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the 100 Area Burial Grounds Remedial Action Sampling and Analysis Plan (DOE/RL-2001-35, December 2001). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

Holding Times

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 28 days for mercury and 6 months for ICP metals.

All holding times were acceptable.

· Preparation (Method) Blanks

Preparation Blanks

At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "U". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

In the case of negative blank results, if the absolute value exceeds the contract required detection limit (CRDL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the negative preparation blank is greater than the instrument detection limit (IDL) and less than or equal to the CRDL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

All preparation blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

Accuracy

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 75% to 125%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 74% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 125% or less than 74% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 125% and a sample result less than the IDL, no qualification is required.

Due to a matrix spike recovery outside QC limits (58%), all antimony results were qualified as estimates and flagged "J".

Due to an LCS recovery outside QC limits (33%), all silicon results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Precision

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 35%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

Due to an RPD outside QC limits (49%), all silicon results were qualified as estimates and flagged "J".

All other laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J134T9/J134V0) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. The RPD for silicon (42%) was outside QC limits. Under the WCH statement of work, no qualification is required. All other field duplicate results were acceptable.

Analytical Detection Levels

Reported analytical detection levels are compared against the 100 Area RQLs to ensure that laboratory detection levels meet the required criteria. All results met the RQL.

Completeness

Data package No. K0501 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to a matrix spike recovery outside QC limits (58%), all antimony results were qualified as estimates and flagged "J".
- Due to an LCS recovery outside QC limits (33%), all silicon results were qualified as estimates and flagged "J".
- Due to an RPD outside QC limits (49%), all silicon results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

WCH, Contract #20266, Validation Statement of Work, Washington Closure Hanford Incorporated, July 7, 2003.

DOE/RL-2001-35, Rev. 0, 100 Area Burial Grounds Remedial Action Sampling and Analysis Plan, U.S. Department of Energy, December 2001.

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with WCH validation SOW are as follows:

- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- BJ Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.
- R Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- Indicates presumptive evidence of a compound at an estimated value.
 The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Summary of Data Qualification

METALS DATA QUALIFICATION SUMMARY*

SDG: K0501	REVIEWER:	Project 118453	RAGE 1 OF 51
COMMENTS:	•		
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Antimony	J	All	MS recovery
Silicon	J	All	LCS recovery
Silicon	J	All	RPD

^{* -} The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Qualified Data Summary and Annotated Laboratory Reports

Project: WASI	HINGT	ON CLO	SUF	E HANF	ORE		_
Lab: LLI	SDG:	K0501		Ī			_
Sample Numb	91	J134T9	_	J134V0			
Remarks		•		Duplicate			
Sample Date		8/2/06		8/2/06			
inorganics	RQL		a	Result	ø	Result	a
Silver		0.21	ı	0.21	_		
Aluminum		4820		4410			
Arsenic	10	2.2		1.8	احا		
Boron		0.81		1.2			Т
Barium	20	52.3		49.0			\prod
Beryllium		0.08		0.10			
Calcium		3790		3700			Т
Cadmium	0.5	0.21	٦	0.21	U		Т
Cobalt		5.6		5.1			Τ
Chromium	1	8.3		6.8			П
Copper		12.0		11.6	L		Π
Iron		14700		13500			Π
Mercury	0.2	0.01	J	0.02	حا		T
Potassium		914		843			Π
Magnesium		3340		3150			T
Manganese		264		238			I_{-}
Molybdenum	٠	0.85	ے	0.85	٦		Ī
Sodium		101		97.7			
Nickel		8.8		8.1			
Lead	10	4.2		3.8			
Antimony		1.3		1.3		:	
Selenium	10	1.4	υ	1.4	υ		
Silicon		508	J	780	5		
Vanadium		33.0		28.9			
Zinc		37.3		33.5			

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/16/06

LIENT: THUHAMPORD RC-032 K0501 ORK ORDER: 11343-606-001-9999-00 LVL LOT #: 06081644

	· .	•		• .	reporting	dilution
MPLR	SITE ID	ANALYTE	RESULT	UNITE	LINIT .	PACTOR
		****************		*****	*********	*******
002	J134T9	Silver, Total	0.21 u	NG/KG	0.21	3.0
		Aluminum, Total	4820	HG/KG	8.4	3.0
		Arsenic, Total	2.2	NG/KG	1.8	3.0
		Boron, Total	0.81	MG/RG	0.70	3.0
	•	Barium, Total	52.3	NG/KG	0.06	3.0
		Beryllium, Total	0.00	MG/KG	0.06	3.0
	•	Calcium, Total	3790	NG/KG	4.0	3.0
	•	Cadmium, Total	0.21 u	NG/KG	0.21	3.0
		Cobalt, Total	ىر 5.6	NG/KG	0.41	3.0
		Chromium, Total	9.3 4	NO/KO	0.38	3.0
•		Copper, Total	12.0	MG/KS	0.35	3.0
	• •	Iron, Total	14700	NG/KG	10.2	3.0
	•	Hercury, Total	0.01 ü	MG/KG	0.01	1.0
	•	Potampium, Total	914	MG/XG	6.7	3.0
		Magnesium, Total	3340	MG/KG	2.6	3.0
		Nanganese, Total	264	#G/XX	. 0.09	3.0
	•	Molybdenum, Total .	0.85 U	MG/KG	0.85	3.0
		Sodium, Total	101	MG/103	2.2	3.0
	•	Nickel, Total	8.5	HG/KG	0.70	3.0
•		Lead, Total	4.2	WG/XX	0.91	(3.0)
		Antimony, Total	1.3 u	Jng/xa	1.3	3.0
		Selenium, Total	1.4 u	ng/kg	1.4	3.0
	•	Silicon, Total	500 1	NG/KG	6.7	73.0
	•	Vanadium, Total	33.0	MG/KG	0.26	3,0
•		Zinc, Total	27.3	MG/KG	0.47	3.0
			-			

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/16/06

LIENT: THUMANFORD RC-032.K0601 DRK ORDER: 11343-606-001-9999-00 LVL LOT #: 0608L644

	· · · -	·			reporting	DILUTION
MPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	PACTOR
			********			*********
301	J134V0 .	· Silver, Total	0.21 u	NG/KG	0.21	3.0
		Aluminum, Total .	4410	MG/KG	0.5	3.0
		Arsenic, Total	1.6 u	NG/KG	1.8	3.0
	•	Boron, Total	1.2	NG/KG	0.70	2.0
•		Barium, Total	49.0	MG/KG	0.06	3.0
	•	Beryllium, Total	0.10	MG/KG	0.06	3.0
		Calcium, Total	· 3700 .	MG/XC3	4.0	3.0
• .		Cadmium, Total	0.21 u	MG/KG	. 0.21	3.0
-		Cobalt, Total	مر 5،1 ·	MG/KG	0.41	3.0
		Chromium, Total	· · · 5	MG/KG	0.26	3.0
		Copper, Total	11.5 Par	MG/X05	0.35	3.0
	•	Iron, Total	13500	MG/KG	10.3	. 3.0
		Mercury, Total	0.02 u	NG/KG	0.02	1.0
		Potassium, Total	843	MG/KG	6.7	3.0
		Magnesium, Total	2150	MG/109	2,8	3.0
		Manganese, Total	236	NG/XG	0.09	3.0
		Kolybdenum, Total	0.45 u	MG/KG	0.86	3.0
`		Sodium, Total	97.7	MG/KG	2.2	3.0
	•	Nickel, Total	8.1	HG/KG	0.70	3.0
•	• ,	Lend, Total	3.6	MG/KG	0.91	3.0
•	•	Antimony, Total .	1.3 u	THG/XG	1.3 .	3.0
	•	Selenium, Total	1.4 u	MG/XG	1.4	. 3.0
•		Silicon, Total	780 I	MG/KG	6.7	. 3.0
		Vanadium, Total	. 28.9	MG/KG	0.26	, 2.0
•	•	Zinc, Total	33.5	MG/KG	0.47	3.0

Politor

Laboratory Narrative and Chain-of-Custody Documentation



Analytical Report

Client: TNU-HANFORD RC-032

LVL#: 0608L644

SDG/SAF#: K0501/RC-032

W.O.#: 11343-606-001-9999-00

Date Received: 08-04-06

METALS CASE NARRATIVE

The following is a summary of the QC results accompanying the sample results. Lionville Laboratory (LvLI) certifies that all test results meet the requirements of NELAC except as noted below.

All soil samples are reported on a dry weight basis unless requested by the client, required by the method, or noted otherwise.

- 1. This narrative covers the analyses of 2 soil samples.
- 2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. The samples were reported with 3-fold dilutions for ICP metals due to sample matrix.
- 3. All analyses were performed within the required holding times.
- 4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
- 5. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
- 6. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
- 7. All ICP Interference Check Standards were within control limits.
- 8. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon at 32.6%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low.
- 9. The matrix spike (MS) recoveries for 5 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

•	••	<u>PDS</u>	<u>PDS</u>
Sample ID	Element	Concentration (ppb)	% Recovery
J134V0	Aluminum	66,000	96.6
	Iron	66,000	102.2
. •	Manganese	6,000	97.9
•	Antimony	300	97.1
	Silicon	6,300	94.6

- The duplicate analyses for 8 analytes were outside the 20% Relative Percent Difference 11. (RPD) control limits. Refer to the Inorganics Precision Report.
- 12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
- LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state 13. accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
- 14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Laboratory Manager

Lionville Laboratory Incorporated

jjw/m08-644

Date



Collector Collman	· •		Company Contact Telephone No. R.T. Coffman 528-6409					Project Coordinator KESSNER, III Price Code				Data Turnaround		
Project Designation 100-F Remaining Sites Bu	rial Grounds - Soil Full Prot		Samoline Location 118-F-3 Shallow Zone Verification A4-D					AF No. IC-032		ir Quality		15	DAY	
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Data Validation Supporting Documentation

HNF-20433 REV 0 -

<u>V</u> ALIDATION LEVEL:	A	В	c	D	E
PROJECT:	118-F-1		DATA PACKAG	E: <050	
VALIDATOR:	TLI	LAB: LL	7	DATE: 10	1/06
			SDG:	LOSOI	
		ANALYSES	PERFORMED		
SW-846/ICD	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		
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Technical verificati Comments:	on documentation p	oresent?			Yes(No) N/A
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2. INSTRUM	MENT PERFORM	IANCE AND CAL	.IBRATIONS (Lev	els D and E)	
					Yes No N/A
•					
ICP interference ch	ecks acceptable?				Yes No N/A
	-		***********************		
ICV and CCV chec	ks acceptable?			••••••••••••••••••••••••••	Yes No N/A
			***************************************		i i
			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
Calculation check a	ecceptable?	•••••••••••••			Yes No N/
Comments:					
		•	· · · · · · · · · · · · · · · · · · ·	·	· · · · · · · · · · · · · · · · · · ·
		•			

3. BLANKS (Levels B, C, D, and E)	
ICB and CCB checks performed for all applicable analyses? (Levels D, E)	
ICB and CCB results acceptable? (Levels D, E)	
Laboratory blanks analyzed?	Yes No N/A
Laboratory blank results acceptable?	Yes No N/A
Field blanks analyzed? (Levels C, D, E)	Yes (N) N/A
Field blank results acceptable? (Levels C, D, E)	Yes No ᢊ
Transcription/calculation errors? (Levels D, E)	Yes No 🐼
Comments:	NOFD
	<u> </u>
	· · ·
	<u>. </u>
4. ACCURACY (Levels C, D, and E)	
MS/MSD samples analyzed?	Yes No N/A
MS/MSD results acceptable?	Yes 🔞 N/A
MS/MSD standards NIST traceable? (Levels D, E)	Yes No (N/A)
MS/MSD standards expired? (Levels D, E)	Yes No WA
LCS/BSS samples analyzed?	
LCS/BSS results acceptable?	Yes (No) N/A
Standards traceable? (Levels D, E)	Yes No W
Standards expired? (Levels D, E)	Yes No 🕦
Transcription/calculation errors? (Levels D, E)	Yes No N
Performance audit sample(s) analyzed?	
Performance audit sample results acceptable?	Yes No (N/)
Comments: M5- 94+1man -57.99 - Jul	NO PAS
LC> - Silica 32,690- July	
	<u></u>

5. PRECISION (Levels C, D, and E)	
Duplicate RPD values acceptable?	Yes No N/A
Duplicate results acceptable?	Yes 😡 N/A
MS/MSD standards NIST traceable? (Levels D, E)	Yes No 🐠
MS/MSD standards expired? (Levels D, E)	Yes No 🕡
Field duplicate RPD values acceptable?	Yes No N/A
Field split RPD values acceptable?	
Transcription/calculation errors? (Levels D, E)	Yes No NA
Comments: Chrome - 33/2 - July 10/2/04 Silican - 47.32 - July	
FB- Silica - 42%	
6. 1CP QUALITY CONTROL (Levels D and E)	
ICP serial dilution samples analyzed?	Yes No/N/A
ICP serial dilution %D values acceptable?	Yes No N/A
ICP post digestion spike required?	Yes No N/A
ICP post digestion spike values acceptable?	Yes No N/A
Standards traceable?	Yes No/N/
Standards expired? Transcription/calculation errors?	Yes No N/4
Transcription/calculation errors?	Yes No N/
Comments:	<u> </u>
	·

7.	FURNACE AA QUALITY CONTROL (Levels D and E)	• • • • • • • • • • • • • • • • • • • •		
Duplicate	e injections performed as required?	Yes	No	N/A
Duplicate	e injection %RSD values acceptable?	Yes	No	N/A
Analytic	al spikes performed as required?	Yes	No	N/A
Analytic	al spike recoveries acceptable?	Yes	No	N/A
Standard	is traceable?	Yes	No	N/A
Standard	ls expired?	Yes	No	N/A
MSA per	rformed as required?	Yes	No	N/A
MSA res	sults acceptable?	Yes	Йo	N/A
	ption/calculation errors?	Yes	No	N/A
Commen	nts:	·		$\underline{\smile}$
				<u>. </u>
		· .		
	·	•		
8.	HOLDING TIMES (all levels)		`	
	properly preserved?		No	
Sample h	olding times acceptable?	Yes.	No	N/A
Commen	its:	<u> </u>		
		· · · · · · · · · · · · · · · · · · ·		
	•			
		· · · · · · · · · · · · · · · · · · ·		
	· · · · · · · · · · · · · · · · · · ·	· ·	<u>·</u>	
		· · · · · · · · · · · · · · · · · · ·		
	•			

	ESULI QUANITIATION AND D	•	•	. ~
Results rep	orted for all requested analyses?			(Yes) No N/A
Results sup	ported in the raw data? (Levels D, E)			
Samples pro	operly prepared? (Levels D, E)	•	**********************	Yes No (N/A
Detection li	imits meet RDL?	*************************		Yes No N/A
Transcription	on/calculation errors? (Levels D, E)			Yes No (N/A)
Comments:				· -
:				
	· · · · · · · · · · · · · · · · · · ·		•	•

Additional Documentation Requested by Client

Lionville Laboratory, Inc.

INORGANICS NETHOD BLANK DATA SUMMARY PAGE 00/16/06

ILIENT: TNUKANFORD RC-032 K0501 FORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0608L644

		·			REPORTING	DILUTION
CAMPLE	SITE ID .	AMALYTE	RESULT	STINU	LIMIT	PACTOR
******	*************	*****************	******			
ILANKI	06L0498-NB1	Silver, Total	, 0.07 u	NG/XG	0.07	1.0
		Aluminum, Totál	2,4 บ	MG/KG	2.4	1.0
	•	Armenic, Total	0.61 u	NG/103	0.61	. 1.0
•		Boron, Total	0.24 u	MG/KG	0.24	1.0
	•	Berium, Total	0.02	NG/XG	0.02	1.0
	•	Beryllium, Total	0.02 u	MG/KG	0.02	1.0
•		Calcium, Total	2.2 u	MG/XG	2.2	1.0
		Cadmium, Total	- 0.07 u	HG/103	0.07	1.0
	· :•	Cobalt, Total	0.14 11	mg/kg	0,14	1.0
		Chromium, Total	0.13 u	NG/XG	0.13	1.0
•	•	Copper, Total	0.12 u	NG/KG	0.12	1.0
		Iron, Total	3.0	MG/KG	0.54	1.0
	•	Potassium, Total	77.1 ¥	NG/KG	77.1	1.0
		Megnesium, Total	3.9 u.	NG/KG	3.9	1.0
		Manganese, Total	0.03 u	MG/KG	0.03	1.0
	•	Molybdenum, Total	0.29 L	NG/KG	. 0.29	1.0
	•	Sodium, Total	2.5 u	MG/KG	2.5	1.0
1	• ,	Nickel, Total	0.24 u	HG/KG	0.24	1.0
		Lead, Total	· 0.31 u	ng/kg	0.31	1.0
		Antimony, Total	D.44 u	NG/KG	0.44	1.0
	•	Selenium, Total	0.47 u.	HG/KG	0.47	1.0
		Silicon, Total	2.3 u	MG/KG	2.3	1.0
		Vanadium, Total	0.09 u	на/ка	0.09	1.0
	. •	finc, Total	0.16 u	HG/KG	0.16	1,0
_ANK1	06C0154-MB1	Hercury, Total	0.02 u	на/ка	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/16/06

TLIENT: TNUHANPORD RC-032.K0\$01 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0608L644

IANPLE	SITE ID	ANALYTE	Spiked Sample	INITIAL RESULT	SPIKED AMOUNT	*RECOV	DILUTION PACTOR (SPK)
.001	J134V0	Silver, Total	4.7	0.210	4.9	95.3	3.0
•	•	Aluminum, Total	6290	4410	196	960.1*	3.0.
		Armenic, Total	185	1.0 u	196	94.6	3.0
•	•	Boron, Total	90.2	1.2	97.9	90.9	3.0
	•	Barium, Total	243	49.0	196	99.2	3.0
	·	Beryllium, Total	4.7	0.10	4.9	93.4.	3.0
	;	Calcium, Total	6150	3700	2450	100.2	. 3.0
		Cadmium, Total	4.9	0.210	4.9	98.0	. 3.0
		Cobalt, Total	52.9	5.1	48.9	97.8	3.0
	• • •	Chromium, Total	28.0	6.8	19.6	106.2	3.0 `
		Copper, Total	36.3	11.6	24.5	100.8	3.0
	•	Iron, Total	16400	13500	37.5	2986 *	3.0
		Mercury, Total	0.16	0.021	0.15	110.9	1.0
	•	Potassium, Total	3240	843	2450	98.0	3.0
		Magnesium, Total	6060	3150	2450	119.1	3.0
		Manganese, Total	329	238	. 48.9	185.7*	2.0
		Molybdenum, Total	92.5	0.85u	97.9	94.5	3.0
•		Sodium, Total	2410	97.7	2450	94.6	3.0
		Nickel, Total	57.0	8.1	48.9	101.6	3.0
	•	Lead, Total	· 50.0	3.4	48.9	94.5	3.0
		Antimony, Total	28.3	1.3 u	48.9	57.9	3.0
		Selenium, Total	182	· 1.4 u	196	93.1 .	. 3.0
		Silicon, Total	662	780	97.9	-120. * .	3.0
	•	Vanadium, Total	85.2	28.9	48.9	115.1	3.0

Zine, Total

Lionville Laboratory, Inc

INORGANICS PRECISION REPORT 08/16/06

TLIENT: TNUHAMPORD RC-032 K0501 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 06081644

		•	JAITIAL			DILU	TION
BAHPLE	di etta	ANALYTE	RESULT	REPLICATE	RPD	· FACT	OR (REP)
	*************	*************		*******			*****
-001REP	J134V0	Silver, Total	0.210	0.21u	, NC	•	3.0
	,	Aluminum, Total	4410	5650	24.6		2.0
		Arsenic, Total	1.8 4	2.1	Ac 300	عسلمان	3.0
	:	Boron, Total	. 1.2	0.70u	nd 200		3.0
		Barium, Total	49.0	53.8	بلای د.و	dida.	3.0
	•	Beryllium, Total	0.10	0.10	0.00 W	वीर्पं	3.0
•	,	Calcium, Total	3700	3900	5.2		2.0
		Cadmium, Total	. 0,210	0.21u	NC		3.0
	•	. Cobelt, Total	5.1	6.2	19.5		3.0
	·	Chromium, Total	6.1	9.5	33.1	•	3.0
		Copper, Total	11.6	13.3	23.7		3.0
		Iron, Total	13500	17700	26.9		3.0
		Hercury, Total	0.024	3.01u	NC	•	1.0
	•	Potassium, Total	843	990	16.9		3.0
		Magnesium, Total	3150	3660	14.9		3.0
	•	Manganese, Total	238	285	17.8	٠.	3.0
	•	Molybdenum, Total	0.85u	0.85u	MC ·		3.0
-		Sodium, Total	27.7	109	10.7		3.0
	•	Nickel, Total	6.1	10.2	23.0		3.0
•	•	Lead, Total	3.6	4.3	12.3	•	3.0
		Antimony, Total	1.3 u	1.3 u	NC		3.0
		Selenium, Total	1.4° u	1.4 u	NC		3.0
		Silicon, Total	780	472	49.3		3.0
		Vanadium, Total	28.9	38.0	29.2		3.0
		Zinc, Total	33.5	40.3	18.4		3.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 08/16/06

CLIENT: TNUHANPORD RC-032 K0501

LVL LOT #1 06081.644

_		·	SPIKED	SPIKED		•
Sample	SITE ID	ANALYTE	8ample	AHOUNT	UNITS	RECOV
******	***********	**************	* *****	R=====		******
LCS1	C6L0498-LC1	Silver, LCS	49.5	\$0.0	NG/KG	99.0
		Aluminum, LCS	448 *	COL	NG/KG	09.5
		Arsenic, LCS	>57	1003	MG/KG	95.7
·		Boron, LCS	476	. 500	NG/XG	95.2
		Barium, LCS	495	500	RG/KG	99.0
•	·	Beryllium, LCS	23.4	25.0	MG/XG	95.2
	•	Calcium, LCS .	2230	2500	NG/XG	99.1
•		Cadmium, LCS	24.4	25.0	MG/KG	97.6
	•	Cobalt, LCS	246	250	MG/303	99.0
	•.	Chronium, LCS	50.2	50.0	MG/KG	100.4
		Copper, LCS	124	125 .	na/ka	99.0
	•	Iron, LCS	463	500	MG/KG	92.6
	Ť	Potassium, LCS	2190	2500	MG/KG	07.5
-		Magnesium, LCS	2220	2500	MG/KG	88.6
•		Hanganese, LCS	75.4	75.0	NG/KG	100.5
		Molybdenum, LCS	499 -	500	MG/KG	99.8
	•	Bodium, LCS	2310	2500	жа/ка	92.5
		Nickel, LCS	198	200	NG/KG	91.9
·	• •	Lead, LCS	245	250	MG/KG	98.1
	•	Antimony, LCS	289	300	NG/KG	96.4
	٠	Selenium, LCS	922	1000	NG/KG	92.2
		Silicon, LCS	163	. 500	MG/KG	32.6
		Vanadium, LCS	250	250,	NG/KG	79.6
	•	Zinc, LCS	96,4	100	MG/KG	56.4
X51	06C0154-LC1	Mercury, LCS	2.9	2.6	но/ко	103.1

Date:

2 October 2006

To:

Washington Closure Hanford Inc. (technical representative)

From:

TechLaw, Inc.

Project:

100-F Remaining Sites Burial Grounds - Soil Full Protocol - Waste Site

118-F-3

Subject: Radiochemistry - Data Package No. K0501-EB

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0501 prepared by Eberline Services (EB). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID: Sample Date			Media	Validation Date			
	J134V0	8/2/06	Soil	C	See note 1		
	J134T9	8/2/06	Soil	С	See note 1		

^{1 -} Gamma spectroscopy, gross alpha, gross beta, nickel-63, total strontium.

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the 100 Area Burial Grounds Remedial Action Sampling and Analysis Plan (DOE/RL-2001-35, December 2001). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Data Requested by Client

DATA QUALITY PARAMETERS

Holding Times

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 6 months.

All holding times were acceptable.

Preparation (Method) Blanks

Laboratory Blanks

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicate the presence of an analyte above the minimum detectable activity (MDA), the following qualifiers are applied: All positive sample results less than five times the highest blank concentration are qualified as estimates and flagged "J"; sample results below the MDA are qualified as undetected and flagged "U"; sample results above the MDA and greater than five times the highest blank concentration are not qualified.

All blank results were acceptable.

Field (Equipment) Blank

No equipment blanks were submitted for analysis.

Accuracy

Accuracy is evaluated from laboratory control sample (LCS) or blank spike sample (BSS) batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts. The acceptable LCS or BSS and matrix spike (MS) recovery range is 65-135%. In addition, samples may be spiked with a radiochemical tracer to assist in isolating the radioisotope of interest with the yield of the tracer being used in calculating sample activity. The acceptable range for tracer recovery is 20% to 105%. Spike sample results outside the above ranges result in associated sample results being qualified as estimates, or not qualified, depending on the activity of the individual sample. Results are rejected for LCS/BSS recoveries of less than 30% and tracer recoveries of less than 20%, and tracer recoveries of greater than 115% for detected results.

All accuracy results were acceptable.

Laboratory Duplicates

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the contract required detection limit (CRDL) and the RPD is less than 35%, no qualification is required. If

either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All duplicate results were acceptable.

Field Duplicates

One set of field duplicates (J134T9/J134V0) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. The RPDs for potassium-40 (30.1%), thorium-228 (46%) and thorium-232 (55%) were outside QC limits. Under the WCH statement of work, no qualification is required. All other field duplicate results were acceptable.

Detection Levels

Reported analytical detection levels for undetected analytes are compared against the remaining waste sites RQLs to ensure that laboratory detection levels meet the required criteria. Five analytes exceeded the RQL. Under the WCH statement of work, no qualification is required.

Completeness

Data package No. K0501 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Five analytes exceeded the RQL. Under the WCH statement of work, no qualification is required.

REFERENCES

WCH, Contract #20266, Validation Statement of Work, Washington Closure Hanford Incorporated, July 7, 2003.

DOE/RL-2001-35, Rev. 0, 100 Area Burial Grounds Remedial Action Sampling and Analysis Plan, U.S. Department of Energy, December 2001.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the WCH statement of work are as follows:

- Indicates the compound or analyte was analyzed for and not detected above the minimum detectable activity (MDA) in the sample. The value reported is the sample result corrected for sample dilution and moisture content by the laboratory. The data is usable for decision making purposes.
- UJ Indicates the compound or analyte was analyzed for and not detected at concentrations above the minimum detectable activity (MDA) in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate, but is usable for decision making purposes.
- Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- R Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

Summary of Data Qualification

RADIOCHEMISTRY DATA QUALIFICATION SUMMARY*

	SDG: K0501 REVIEWER: Project: 118-F-3 PAGE 1_OF 1	
•	COMMENTS: No qualifiers assigned	}

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Qualified Data Summary and Annotated Laboratory Reports

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Project: WASHINGTON CLOSURE HANFORD									
Laboratory: EB									
Case	SDG:	K0501							
Sample Number		J134T9		J134V0					
Remarks				Duplicate					
Sample Date		8/2/06		8/2/06					
Radiochemistry	RQL	Result	a	Result	Q				
Gross alpha		2.82	כ	12.4	1				
Gross beta		16.1		17.6					
Nickel-63	30	4.21		2.06					
Total strontium	1	0.276	U	-0.045	U				
Potassium-40		11.7		8.64					
Cobalt 60	0.05	U	U*	U	יטו				
Cesium 137	0.1	U	U.	0.094					
Radium-226		0.279		0.340					
Radium-228		0.833		0.473	Г				
Europium 152	0.2		U	U	U				
Europium 154	0.2	U	Ū.	Ū	U.				
Europium 155		U	U	U	U				
Thorium-228		0.255		0.407					
Thorium-232		0.833		0.473					
Uranium-235(gea)		· U	U	U	U				
Uranium-238(gea)		U	1	U	U				
Silver-108m	0.1	υ	U	U	U				

EBERLINE SERVICES / RICHMOND SAMPLE DELIVERY GROUP K0501

7847-001

DATA SHEET

J134T9

		7847 Melissa C. Mannion	Client/Case no Contract		 SDG_K0501
Dept sa	mple id	R608021-01 7847-001 08/03/06 97.9	Client sample id Location/Matrix Collected/Weight Custody/SAF No	118-F-3 Shallow 08/02/06 14:00	<u>g</u> _

ANALYTE	CAS NO	RESULT pci/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	2.82	2.8	4.0	10	ט	93A
Gross Beta	12587-47-2	16.1	5.2	7.6	15 .		93B
Nickel 63	13981-37-8	4.21	2.0	3.2	30		NI L
Total Strontium	SR-RAD	0.276	0.25	0.44	1.0	ט	SR
Potassium 40	13966-00-2	11.7	2.1	1.2			GAM
Cobalt 60	10198-40-0	U		0.14	0.050	ט	GAM
Cesium 137	10045-97-3	บ	*	0.11	0.10	บ	GAM
Radium 226	13982-63-3	0.279	0.17	0.19	0.10		GAM
Radium 228	15262-20-1	0.833	. 0.71	0.62	0.20		GAM
Europium 152	14683-23-9	ប 🦾		0.18	0.10	ט .	GAM
Europium 154	15585-10-1	. ט	•	0.45	0.10	Ü	GAM
Europium 155	14391-16-3	ט	•	0.11	0.10	Ū	GAM
Thorium 228	14274-82-9	0.255	0.090	0.093			GAM
Thorium 232	TH-232	0.833	0.71	0.62			GAM
Uranium 235	15117-96-1	ָ ט		0.17		ט	GAM
Uranium 238	U-238	ับ		16		ָ עַ	GAM
Americium 241	14596-10-2	U		0.11		บ	GAM
Silver 108m	14391-65-2	ט	•	0.061		ซ	GAM

100-F RemainSitesBurialGrnds-Soil FP

10/1/06

DATA SHEETS
Page 1
SUMMARY DATA SECTION
Page 11

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 08/23/06

EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP K0501

7847-002

DATA SHEET

J134V0

SDG	7847	Client/Case no	Hanford	SDG KOSO1
Contact	Melissa C. Mannion	Contract		
	700002 02		75. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7.	
Lab sample id Dept sample id		Client sample id	<u>J134V0</u> <u>118-F-3 Shallow Zn.</u>	Varif COLTD
Received	08/03/06		08/02/06 14:00 8	
* solids	97.3	Custody/SAF No		032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	Test
Gross Alpha	12587-46-1	12.4	5.0	5.3	10		93A
Gross Beta	12587-47-2	17.6	4.5	5.8	15		. 93B
Nickel 63	13981-37-8	2.06	2.0	3.3	30	ט	NI_L
Total Strontium	SR-RAD	-0.045	0.18	0.39	1.0	ט	SR
Potassium 40	13966-00-2	8.64	2.6	0.78		•	GAM
Cobalt 60	10198-40-0	U	•	0.093	0.050	บ	GAM
Cesium 137	10045-97-3	0.094	0.063	0.069	0.10	•	GAM
Radium 226	13982-63-3	0.340	0.14	0.14	0.10	•	GAM
Radium 228	15262-20-1	0.473	0.34	0.34	0.20		GAM
Europium 152	14683-23-9	ט		0.16	0.10	ט	GAM
Europium 154	15585-10-1	บ		0.23	0.10	י	GAM
Europium 155	14391-16-3	ט		0.20	0.10	U	GAM
Thorium 228	14274-82-9	0.407	0.084	0.083			GAM
Thorium 232	TH-232	0.473	0.34	0.34		•	GAM
Uranium 235 .	15117-96-1	ָ ט		0.27		י ט	GAM
Uranium 238	U-238	ט		8.8	•	ט	GAM
Americium 241	14596-10-2	ש		0.25		บ	GAM
Silver 108m	14391-65-2	ซ		0.048		บ	GAM

100-F RemainSitesBurialGrnds-Soil FP

Moliloc

DATA SHEETS
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Page 12

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 08/23/06

Laboratory Narrative and Chain-of-Custody Documentation

Case Narrative

Page 1 of 1

GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K0501 was composed of two solid (soil) samples designated under SAF No. RC-032 with a Project Designation of: 100-F Remaining Sites Burial Grounds-Soil Full Protocol.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on August 23, 2006.

ANALYSIS NOTES

Gross Alpha/Gross Beta Analysis

No problems were encountered during the course of the analyses.

Nickel-63 Analysis

No problems were encountered during the course of the analyses.

Total Strontium Analysis 2.3

No problems were encountered during the course of the analyses.

. Gamma Spectroscopy 2.4

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement 3.0

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa C. Mannion

Senior Program Manager

8/24/6 Date

Washington Closure	e Hanford	LCI	<u>IAIN OF CUST</u>	<u>ODY/S</u>	<u>ample</u>	<u>ANAL)</u>	(919)	(EQUESI					
Collector Coffman	·		nv Contact Coffman	Telephor 528-64	ne No.	0501		Project Coordin KESSNER, JH	ator P	rice Code		Data Tu	raround
Project Designation 100-F Remaining Sites Burial	Grounds - Soil Full Prote	_	ng Location F-3 Shallow Zone Veril	lication	(78	47)		SAF No. RC-032	Al	ir Quality		15	Day:
Ice Chest No. SAW	5-107		.ogbook No. -1174-1	·	COA R118F3200	00		Method of Ship Fed Ex	ment .	,	<u> </u>	·	
Shipped To EBERLINE SERVICES / LIC	ONVILLE	Offsite	Property No.	AOG	057	3		Bill of Lading/	Vir Bill No.	. Sec	ospc	- '.	· <u>:</u> <u></u>
POSSIBLE SAMPLE HAZAI	RDS/REMARKS			λ	i '		_		:	1	٠.		
NA			Preservation	None	Cool 4C	None	Nonc	None		<u> </u>			
Special Handling and/or S	torsee		Type of Container	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	aG	P	P	G/P	=:	<u> </u>	ļ	<u> </u>	
HA-FTC 8/2/06	torage		No. of Container(s)	1 1	1	1 .	t	. 1		}		<u> </u>	
GOOL AC			Volume	250	60mL	500mL	120ml	60mL		 			· ·
00015	SAMPLE ANALY	(SIS		See item (1) or Special Instructions	PCBs - 8042	Set item (2) in Special Instructions.	Nickel-6 Strontiu 89,90 — Ti Sr	Gross Beta				 	
15				\ ×	18:	.			:				
Sample No.	Matrix *	Sample Date	Sample Time		回中国								
J134T9	SOIL	8/2/06	1400		<u>B</u>	_χ_	<u>.X</u>	<u> </u>		<u> </u>		·	<u> </u>
										<u> </u>	 		<u> </u>
		<u> </u>		<u> </u>	 	ļ			<u> </u>		<u> </u>	ļ	
				 	 \				ļ	 	ļ	 	
				<u> </u>	<u> </u>		<u>L</u>			<u> </u>	<u> </u>	1	Matrix *
CHAIN OF POSSESSIO	Date/Time 1730	Sign/Prin Received By/Sign	t Names red in D	ate/Time	<u> </u>	IAL INSTR		•					9-Sell
Relinquished By/Removed From RTCe:FFWAN /FTCe	form 8/2/06		54,3728	812100	Cade	ium, Calcium,	Chromiun	List) (Alominum, a L Cobalt, Copper, i	iron, Leed, M	lagneshan, Mar	iganese, Molyt	odernum,	S2-Satiment S0-Satid
Relinquished By/Removed From	Date/Time	Received By/Sto		Oute/Time	Nicks (2) 0	d, Potassium, S iamma Spectro	ielenium, S scopy (TC	Silicon, Silver, Sod L List) (Cesium-1)	um, V <i>anadiu</i> 37, Cobalt-60	rn, Zinc}; Merc I, Europium-15:	eury - 7471 - († 2. Europium-13	CV) 4. Europium-	SI-Sieter W = Water
Relinquished By/Removed From 44	Pell Date/Time	Received By/Sto		mie/Liene	issi	Gamma Spec	- Add-on	Silver-106 metasti	ble}	٠.	·		O-Oil A-Air DS-Drus Solds
mess motorial	8/3/06 1500		FCOEX							• •			Dir-Oran Liquid T=Times
Relinquished By/Removed From	Date/Time	Received By/Sto	11 D8046	eno/Time G	<u>ን</u> ህ		•				• • •	•	Wi-Wipe U-Liquid V-Vapation
Relinquished By/Removed From	Date/Time	Received By Sta		Date/Time \	Pers Rel	onnel not av inquish samp	les_from_	3728 -	: .			•	X=Odes
Relinquished By/Removed From	Date/Tyrns	Received By/Sto	red In D	Date/Time .	Ref	<u> 3C</u> on <u></u> 8	<u> 12 </u>	<u>*</u>				٠.	<u> </u>
LABORATORY Received By	у			T	itle					· .		Datt/Time	
SECTION FINAL SAMPLE Disposal M	lethod					. Dispo	sed By	•				Date/Time	 -
DISPOSITION													

Washington Closur	e Hanford	CŁ	<u>IAIN OF CUST</u>	<u>'ODY/S.</u>	<u>AMPLE</u>	ANAL	YSIS	REQUEST		RC-	-032-047	Page 1	ot 1
Collector Collman			ny Contact Coffman	Telephon 528-64	se No. 109	K050 1		Project Coordin KESSNER, JH	nator Pr	rice Code		Data Tur	naround
Project Designation 100-F Remaining Sites Burial	Grounds - Soil Full Protoco		ing Location F-3 Shallow Zone Verif	lication	(7	847)		SAF No. RC-032	N	ir Quality		151	AAY .
Ice Chest No. 54WS	-107		.ogbook No. -1174-1		COA R118F3200	10		Method of Ship: Fed Ex	mest	:	1		
Shipped ToEBERLINE SERVICES / LK	ONVILLE	Offsite	Property No.	A060	573			Bill of Lading/	Air Bill No.	Seco	1300		
POSSIBLE SAMPLE HAZA	RDS/REMARKS	<u> </u>		N		[]	١. ١		1			j · · · ·)	1 -
NA			Preservation	None	Cool 4C	Nose .	Noe	e Nose		<u></u>			
Special Handling and/or S	torage		Type of Container	1/,	•6	P .							
NA		}	No. of Container(s)			1	_ 1	. 1 .			·	1	
c			Volume	250g	60mL	500mL	120m	nL 60mL					
000	SAMPLE ANALYS			Sec item (1) in Special Instructions	PCBs - \$082	See Item (2) in Special Instructions.	Mckel-6 Streetin \$9,90 - 1	Total			· ·		
016	onver de ANALYS			,			Sr						
Sample No.	Matrix •	Sample Date	Sample Time	W	1					22.22.22.22.22.22.22.22.22.22.22.22.22.			
J134V0	SOIL	8/2/06		THE PARTY	The same	X	Y	X	1		THE PARTY AND	10002000	
		<u> </u>		 	 	1	 ^			 			
				 					 	†	 	 	
		···		 	 					 	1		
		····		 	 	<u> </u>		 	1	 		1	
CHAIN OF POSSESSIO	N.	Sign/Print			SPEC	LAL INSTR	UCTIO	NS		<u></u>	<u>* </u>	-	Matrix *
Relinquished By/Removed Brom RET WAN /RT		Received By/Store	3C, 3728	8/2/06	30 (1) K	CP Metals - 601 sium, Calcium, (10 (Client Chromiun	t List) (Ahamimum, A m, Cobelt, Copper, Is	iron, Lead, Ma	gnesium, Mung	ganese, Molyb	denum,	9-948 · 52-5-66-44 50-9464
Relinquished By/Removed From 3/28/3C 4/3/6	96 0900	Received By/Store	reference 8/3	<u> </u>	Nicke (2) G	el, Potassium, Se Farma Spectros	ielenium, (scopy (TC	Silicon, Silver, Sodi CL List) (Contam-13 (Silver-108 metastal	ium, Venedium 37, Cobelt-60,	n, Zinc}; Merci	ury - 7471 - (C	(75)	SI-Sinder W = Water O-Oil
Relinquished By/Removed From G MLA VISTATION	self Date/Time	Received By/Slore	Fel L	have/Time		, contain SPCC	- word CRT	American in the interest of	1	•		:	A-Air ' DS-Orus Salida DC-Orus Liquida T-Tissus
Relinquished By/Bernoved From		Received By/Store	EU 08.41.8	ote/Time G:	7 /2					• .	-		W1-Wipe C-Liquid V=Vogastion
Relinquished By Removed From	Date/Time	Received By/Sion		lete/Time	Pers reii	sonnel not av inquish sampl	les from	1 3728				. ' '	X-Oher
Relinquished By/Removed From	Date/Time	Received By/Ston	ed In D	lete/Tims	Rel	on	<u> </u>	<u>or</u>	٠.		· · ·	· 	
LABORATORY Received By SECTION	у .	1		Tw	ile						ī	Date/Time	·
FINAL SAMPLE Disposal M DISPOSITION	ethod					Dispo	eed By		· · · · ·		. 1	Duto/Time	
								<u>-</u>		 -			

Data Validation Supporting Documentation

APPENDIX A RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	В	0	D	E
PROJECT:	1(8-F-3		DATA PACKAC		
VALIDATOR:	747	LAB: FB		DATE: /o(r	/oc
·	<u> </u>	ANIATVOEC	SDG: PERFORMED	K0501	
Gross Alpha/Bets	Stronturm-90	ANALYSES	Alpha Spectroscopy	Gemma Spectroscom	<u> </u>
TOTAL Gramma	Radium-22	Tritium	(11-63)		
SAMPLES/MAT					· ·
713479	<u> </u>	<u> </u>			· · · · · · · · · · · · · · · · · · ·
·				···	
					
<u> </u>				·	501
	· · · · · · · · · · · · · · · · · · ·	· 	<u> </u>		
1. Completenes	SS		22222222222222	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	🗆 N/A
					^
Technical verifi	cation forms pre	sent?	***********	Ye	s(No)N/A
Comments:					
,					•
	<u> </u>				
		<u> </u>		<u> </u>	
					<u> </u>
					-1
2. Initial Calibr	ration (Levels D	E)		**************************************	Þ.N/A
					,
Instruments/det	ectors calibrated	?	****************		Yes No N/A
Initial calibration	n acceptable?				Yes No N/A
					Yes No N/A
			•		
Standards Expu	rea?				Yes No N/A
Calculation che	ck acceptable?		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Yes No N/A
Comments:		•			<u> </u>
<u></u>					

3. Continuing Calibration (Levels D, E)		NIA
Calibration checked within required frequency?	Yes	No N/A
Calibration check acceptable?		
Calibration check standards traceable?	Yes	No N/A
Calibration check standards expired?	Yes	No N/A
Calculation check acceptable?	Yes	No N/A
Comments:		•
	•	
	·	-
4. Background Counts (Levels D, E)		N/A
Background Counts checked within required frequency?	Yes	No N/A
Background Counts acceptable?	Yes	No N/A
Calculation check acceptable?	Yes	No N/A
Comments:		
		<u> </u>
		-

5. Blanks (Levels B, C, D, E)	□ N/A
Method blank analyzed within required frequency?	
Method blank results acceptable?	
Analytes detected in method blank?	
Field blank(s) analyzed?	
Field blank results acceptable?	
Analytes detected in field blank(s)?	
Transcription/Calculation Errors? (Levels D, E)	
Comments:	
6. Laboratory Control Samples or Blank Spike Samples (Levels	s C, D, E) N/A
LCS /BSS analyzed within required frequency?	
LCS/BSS recoveries acceptable?	
LCS/BSS traceable? (Levels D,E)	Yes No(N/A)
LCS/BSS expired? (Levels D,E)	Yes No No
LCS/BSS levels correct? (Levels D,E)	Yes No N/A
Transcription/Calculation Errors? (Levels D, E)	
Comments:	
	·
7. Chemical Carrier Recovery (Levels C, D, E)	SN/A
Chemical carrier added?	Yes No N/A
Chemical recovery acceptable?	•
Chemical carrier traceable? (Levels D, E)	Yes No N/A

Chemical carrier expired? (Levels D, E)	Yes No N/A
Transcription/Calculation errors? (Levels D, E)	Yes No N/A
Comments:	
8. Tracer Recovery (Levels C, D, E)	🗆 N/A
Tracer added?	
Tracer recovery acceptable?	Yes No N/A
Tracer traceable? (Levels D, E)	Yes ANA
Tracer expired? (Levels D, E)	
Transcription/Calculation errors? (Levels D, E)	
Comments:	••
9. Matrix Spikes (Levels C, D, E)	
Matrix spike analyzed?	Ves No N/A
Spike recoveries acceptable?	
Spike source traceable? (Levels D, E)	
Spike source expired? Levels D, E)	
•	• •
Transcription/Calculation Errors? (Levels D, E)	
Comments:	
	· · · · · · · · · · · · · · · · · · ·

10. Duplicates (Levels C, D, E)	N/A
Duplicates Analyzed at required frequency?	Vev No N/A
RPD Values Acceptable?	Yes No N/A
Transcription/Calculation Errors? (Levels D, E)	Yes No (N/A)
Comments:	
	· · · · · · · · · · · · · · · · · · ·
	· .
11. Field QC Samples (Levels C, D E)	□ N/A
Field duplicate sample(s) analyzed?	Yes No N/A
Field duplicate RPD values acceptable?	
Field split sample(s) analyzed?	Yes(N ₀) N/A
Field split RPD values acceptable?	Yes No (N/34
Performance audit sample(s) analyzed?	Yes N/A
Performance audit sample results acceptable?	Yes No (N/A
Comments: FD	FS ac PAS
K-40 - 30.1%	
th - 228 46%	
H - 232 557.	······································
12. Holding Times (All levels)	
Are sample holding times acceptable?	Ves No N/A
•	
Comments:	

13. Results and Detection Limits (All Levels)	□ N/A
Results reported for all required sample analyses?	Yes No N/A
Results supported in raw data?(Levels D, E)	Yes No 📈
Results Acceptable? (Levels D, E)	Yes No 🕡
Transcription/Calculation errors? (Levels D, E)	Yes No No
MDA's meet required detection limits?	Yes (No) N/A
Transcription/calculation errors? (Levels D, E)	Yes No (N/A
Comments: 5 over	
·	

Additional Documentation Requested by Client

EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP K0501

7847-004

METHOD BLANK

Method Blank

	7847 Melissa C. Mannion	Client/Case no Contract	 SDG_K0501
Lab sample id Dept sample id		Client sample id Material/Matrix SAF No	SOLID

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIRRS	TEST
Gross Alpha	12587-46-1	-0.149	1.7	3.9	10	บ	93A
Gross Beta	12587-47-2	-0.561	3.7	6.4	15	ט	93B
Nickel 63	13981-37-8	0.998	1.7	2.8	30	Ū	NI L
Total Strontium	SR-RAD	-0.149	0.14	0.31	1.0	ט	SR ·
Potassium 40	13966-00-2	" "		1.8	•	บ	GAM
Cobalt 60	10198-40-0	ט .		0.075	0.050	์ บ .	GAM
Cesium 137	10045-97-3	Ū	•	0.071	0.10	ช	GAM
Radium 226	13982-63-3	U.	•	0.22	0.10	บ	GAM
Radium 228	15262-20-1	ប	•	0.29	0.20	U .	GAM
Europium 152	14683-23-9	ט		0.16	0.10	U	GAM
Europium 154	15585-10-1	ָ ט	•	0,19	0.10	υ.	GAM
Europium 155	14391-16-3	บ		0.18	0.10	ซ	GAM
Thorium 228	14274-82-9	บ		0.087		ପ ` `	GAM
Thorium 232	TH-232	ט		0.29	•	บ	GAM '
Uranium 235	15117-96-1	U		0.25	• .	ช .	GAM
Uranium 238	U-238	บ		7.4	•	Ü	GAM
Americium 241	14596-10-2	U		0.20		บ	GAM
Silver 108m	14391-65-2	ช		0.043	•	ט	GAM

100-F RemainSitesBurialGrnds-Soil FP

QC-BLANK #58092

METHOD BLANKS
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Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 08/23/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP KOSO1

7847-003

LAB CONTROL SAMPLE.

Lab Control Sample

SDG 7847	Client/Case no Hanford SDG K0501
Contact Melissa C. Mannion	Contract No. 630
Lab sample id <u>R608021-03</u>	Client sample id Lab Control Sample
Dept sample id <u>7847-003</u>	Material/MatrixSOLID
	SAP NO <u>RC-032</u>

ANALYTE	RESULT pci/g	20 ERR (COUNT)	MEA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	20 ERR pCi/g	RBC *	30 LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	73.1	11	5.6	10	<u></u>	93A	102	4.1	72	72-128	70-130
Gross Beta	103	. 7.7	5.7	15		93B	97.3	3.9	106	73-127	70-130
Nickel 63	212	6.B	3.6	30		NI_L	224	9.0	. 95	84-116	80-120
Total Strontium	10.6	0.65	0.30	1.0	•	BR	9.73	0.39	109 .	80-120	80-120
Cobalt 60	1.05	0.13	0.069	0.050		GAM	1.07	0.043	98	71-129	80-120
Cesium 137	1.19	0.12	0.087	0.10		GAM	1.14	0.046	104	71-129	80-120

100-F RemainSitesBurialGrnds-Soil FP

				-	
OC-LCS	#58091	-			

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Porm DVD-LCS
Version 3.06
Report date 05/23/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0501

7847-005

J134T9

DUPLICATE

SDG 7847		Client/Case no <u>Hanford</u> SDG K0501
Contact Melissa C. Mannion	e de la companie	Contract No. 630
DUPLICATE	ORIGINAL	
b sample id <u>R608021-05</u>	Lab sample 1d R608021-01	Client sample id J134T9
t sample 1d 7847-005	Dept sample id 7847-001	Location/Matrix 118-F-3 Shallow En. Verif SOLID
	Received <u>08/03/06</u>	Collected/Weight 08/02/06 14:00 1022 g
* solids 97.9	t solids 97.9	Custody/SAF No RC-032-046 RC-032

TALE	DUPLICATE pci/g	20 ERR	MDA pci/g	PDL pCi/g	OUALI- FIERS	TBST	original pci/g	20 ERR (COUNT)	PCI/g	PIERS	RPD *	3 <i>6</i> TOT	DER
es Alpha	7.32	3.8	4.2	10		93A	2.82	2.8	4.0		. 89	147	1.8
as Beta	16.9	4.1	5.3	15		93B	16.1	5.2	7.6		5	68	0.2
kel 63 ·	2.83	2.0	3.2	30	ָ ס [']	NI_L	4.21	2.0	3.2		40	123	1.0
al Strontium	0.213	0.17	0.38	1.0	ט	SR	0.276	0.25	0.44	U	•		3.2
assium 40	10.7	1.0	0.71		•	GAM	11.7	2.1	1.2	•	9	45	0.6
alt.60	. ' 🛡		0.068	0.050	υ,	GAM	U		0.14	0		٠.	0.9
ium 137	ซ		0.051	0.10	U	GAM	U		0.11	ט	•		1.0
ium 226 ·	0.310	0.090	0.096	0.10		GAM	0.279	0.17	0.19		11	103	0.3
ium 228	0.685	0.26	0.26	0.20		GAM	0.833	0.71	0.62	•	20	153	0.4
opium 152	. ប		0.085	0.10	Ð .,	GAM	U		0.18	ט	•		0.9
opium 154	Ū		0.19	0.10	ט	GAM	Ū		0.45	ט			1.1
opium 155	ប		0.051	0.10	" ט	GAM	ט		0.11	ט	•		1.0
rium 22§	0.277	0.037	0.036			GAM	0:255	0.090	0.093		•	63	0.4
rium 232	0.685	0.26	0.26			GAM	0.833	0.71	0.62		20	153	0.4
nium 235	บ ·		0.078		Ū	GAM	Ū		0.17	U	-		1.0
nium 238	ט		7.1		. u .	GAM	U		16	י ס	-		1.0
ricium 241	U		0.049		ס	GAM	ט		0.11	U	-		1.0
ver 108m	υ		0.023		Ū	GAM	ס		0.061	ט	•		1.2

)-P RemainSitesBurialGrnds-Soil FP

-DUP#1 58093

DUPLICATES

Page 1

MARY DATA SECTION

Page 10

 Date:

2 October 2006

To:

Washington Closure Hanford Inc. (technical representative)

From:

Project:

100-F Remaining Sites Burial Grounds - Soil Full Protocol - Waste Site

....... 118-F-3

Subject: PCB - Data Package No. K0501-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0501 prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation 2	
J134V0	8/2/06	Soil	С	See note 1
J134T9	8/2/06	Soil	С	See note 1

^{1 -} PCBs by 8082.

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the 100 Area Burial Grounds Remedial Action Sampling and Analysis Plan (DOE/RL-2001-35, December 2001). Appendices 1 through 5 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers

Appendix 2. Summary of Data Qualification

Appendix 3. Qualified Data Summary and Annotated Laboratory Reports

Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation

Appendix 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

Holding Times

Sample data were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

If holding times are exceeded by less than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for nondetects. If holding times are exceeded by greater than two times the limit, all

associated detected sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

Method Blank

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation or analysis. At least one method blank analysis must be conducted for every 20 samples. Method blanks should not contain target compounds at a concentration greater than required quantitation limit (RQL). If target compounds are present, sample results less than five times the blank concentration are qualified as undetected and flagged "U". If the sample result is less than five times the blank concentration and less than RQL, the result is qualified as undetected and elevated to the RQL.

All method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

Accuracy

Matrix Spike & Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Non-detected sample results with spike recoveries outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

All accuracy results were acceptable.

Surrogate Recovery

The analysis of surrogate compounds provides a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows

have been established by the laboratory. When a surrogate compound recovery is outside the control window, all positively identified target compounds associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J". Non-detected compounds with surrogate recoveries less than the lower control limit are qualified as having an estimated detection limit and flagged "UJ". Non-detected compounds with surrogate recoveries above the upper control limit require no qualification.

All surrogate results were acceptable.

Precision

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike/matrix spike duplicate results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed as the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. For soil samples, results must be within RPD limits of plus/minus 35%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

All precision results were acceptable.

Field Duplicate Samples

One set of field duplicates (J134T9/J134V0) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

Analytical Detection Levels

Reported analytical detection levels are compared against the 100 Area RQLs to ensure that laboratory detection levels meet the required criteria. All analytes in sample J134V0 exceeded the RQL. Under the WCH statement of work, no qualification is required. All other analytes met the RQL.

Completeness

Data Package No. K0501 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

All analytes in sample J134V0 exceeded the RQL. Under the WCH statement of work, no qualification is required.

REFERENCES

WCH, Contract #20266, Validation Statement of Work, Washington Closure Hanford Incorporated, July 7, 2003.

DOE/RL-2001-35, Rev. 0, 100 Area Burial Grounds Remedial Action Sampling and Analysis Plan, U.S. Department of Energy, December 2001.

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the procedures herein are as follows:

- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- R Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- Indicates presumptive evidence of a compound at an estimated value.
 The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2
Summary of Data Qualification

PCB DATA QUALIFICATION SUMMARY*

•	SDG: K050 REVIEWER. Project: 118-F-3	PAGE 1 OF 1
	COMMENTS: No qualifiers assigned	

^{* -} The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Qualified Data Summary and Annotated Laboratory Reports

Project: WASHINGTON CLOSURE HANFORD									
Laboratory: LLI									
Sample Number	J134T9		J134V0						
Remarks			Duplicate						
Sample Date	8/2/06		8/2/06	-					
Extraction Date	8/8/06		8/8/06						
Analysis Date	8/16/06		8/17/06						
PCB	RQL	Result	Q	Result	Q				
Aroclor-1016	16.5	14	U	21	U				
Aroclor-1221	16.5	14	U	21	U				
Aroclor-1232	16.5	14	U	21	Ū				
Aroclor-1242	16.5	14	Ü	21	U				
Aroclor-1248	16.5	14	U	21	U				
Aroclor-1254	16.5	14	Ū	21	U				
Aroclor-1260	16.5	14	υ	21	υ				

	Cust ID:	J134V0	i	J134V0)	J134V0)	J134T9		PBLKNB		PBLKNB BS	
Sample Information	RFW#: Matrix: D.F.: Units:	001 SOIL 1.0 UG/K	10	001 MS SOIL 1.0 UG/H	10	001 MSD SOIL 1.0 UG/K		002 SOIL 1.0 UG/K		06LE0642-M SOIL 1.0 UG/K	0	06LE0642-M SOIL 1.0 UG/K	0
Surrogate:	Tetrachloro-m-xylene Decachlorobiphenyl	110 103	* *	103 95	* *	107 96	% % =fl=-	107 95	* * -f1	101 96	* * -f1	108	* *
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U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Laboratory Narrative and Chain-of-Custody Documentation



Case Narrative

Client: TNU-HANFORD RC-032

LVL#: 0608L644

SDG/SAF # K0501/RC-032

W.O. #: 11343-606-001-9999-00

Date Received: 07-27-2006

PCB ·

Two (2) soil samples were collected on 08-02-2006.

The samples and their associated QC samples were extracted on 08-08-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 08-16,17-2006. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

The following is a summary of QC results accompanying the sample results. Lionville Laboratory Inc (LvLI) certifies that all test results meet the requirements of NELAC except as noted below:

- 1. All samples were extracted and analyzed within required holding time.
- 2. The sample results were reported on a wet-weight basis.
- 3. The samples and their associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.
- 4. The method blank was below the reporting limits for all target compounds.
- 5. All obtainable surrogate recoveries were within acceptance criteria.
- 6. The blank spike recoveries were within acceptance criteria.
- 7. All matrix spike recoveries were within acceptance criteria.
- 8. The initial calibrations associated with this data set were within acceptance criteria.
- 9. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

- 10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
- 11. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iairi Daniels

Laboratory Manager

Lionville Laboratory Incorporated

kim\r:\group\data\pest\tnu hanford\0608-644pcbs

6/18/00 Date



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Data Validation Supporting Documentation

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E) Initial calibrations acceptable?	LEVEL:	A .	В			
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5. PRECISION (Levels C, D, and E)	
Duplicate RPD values acceptable?	(Yes NO N/A
Duplicate results acceptable?	(Yes) No N/A
MS/MSD standards NIST traceable? (Levels D, E)	Yes No NA
MS/MSD standards expired? (Levels D, E)	Yes No (N/A)
Field duplicate RPD values acceptable?	Yes No NA
Field split RPD values acceptable?	Yes No NY
Transcription/calculation errors? (Levels D, E)	Yes No (N/A)
Comments:	
6. SYSTEM PERFORMANCE (Levels D and E)	
Chromatographic performance acceptable?	Yes No N/A
Positive results resolved acceptably?	Yes No N/A
Comments:	
7. HOLDING TIMES (all levels)	6
Samples properly preserved?	Yes No N/A
Sample holding times acceptable?	• • • • • • • • • • • • • • • • • • •
Comments:	

levels) Company distantification acceptable? (Levels D. E.)	V 1	NA 6211
Compound identification acceptable? (Levels D, E)		NO (N/A
Compound quantitation acceptable? (Levels D, E)	Yes 1	NO (N/A
Results reported for all requested analyses?	Yes	No N/A
Results supported in the raw data? (Levels D, E)	Yes 1	% (<u>₩</u>
Samples properly prepared? (Levels D, E)		NO (N/A
Detection limits meet RDL?		
Transcription/calculation errors? (Levels D, E)	• • • • • • • • • • • • • • • • • • •	No (N/A
Comments: VO - all and		
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9. SAMPLE CLEANUP (Levels D and E)		_
Fluoricil ® (or other absorbent) cleanup performed?	Yes]	No N/A
Lot check performed?		
Check recoveries acceptable?		
GPC cleanup performed?	Yes	No N/A
GPC check performed?		•
GPC check recoveries acceptable?	Yes	NO N/A
GPC calibration performed?		
GPC calibration check performed?		
GPC calibration check retention times acceptable?	•	i i
Check/calibration materials traceable?		
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Analytical batch QC given similar cleanup?		1
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